

teeth of the corresponding side are extracted, and the gums detached from the inside of the lower jaw by means of a raspator. He then excises the diseased structures by repeated short cuts with a pair of curved scissors. Any hæmorrhage that may occur is immediately arrested by the ligature of any bleeding vessels. If both lingual arteries are previously tied hæmorrhage is nearly absent, and the stump looks pale, like the muscles of a limb after Esmarch's bandage has been used. If only one lateral half of the tongue has to be removed he first makes a median division, and afterwards a transverse section of the affected side. When the operation is completed, the drainage is carefully provided for, and the surface of the wound is cauterised by means of a strong solution of permanganate of potash, or the same salt in powder. After operations have been conducted in this manner Billroth has never experienced cellulitis, diphtheria, or bronchial pneumonia. The temperature remains almost normal, and between the third and seventh day the drainage-tubes are removed. The patients are fed by means of an œsophageal tube for about the first week.

Billroth observes that the tongue can easily be removed with the curved scissors through the mouth, after the lingual arteries have been ligatured, which he regards as a simple matter. The success of his operations by this method amounts to 84.2 per cent., and further testify to the advantage of excision over the *écraseur*.

From this account it will be observed that the operation of Billroth very much resembles the one I have been in the habit of practising without knowing that any other surgeon relied entirely on scissors for excision of the tongue. The only difference in our modes of procedure appears to have been that Billroth made the ligature of the linguals a preliminary operation, while I left these arteries intact until divided during the excision of the tongue. This is a minor difference, and when the operation involves more than the removal of the tongue Billroth's method is probably to be preferred, as the submental wounds are quite as available for the removal of diseased glands as the one I am accustomed to make subsequently and independently for the same purpose.

I have recently sent to the surgical registrars of hospitals a letter, urging them to adopt some uniform system of recording the results of operations on the tongue for cancer, and I will conclude by taking this opportunity of repeating the grounds upon which I think this desirable.

The past records of excision of the tongue have not hitherto been given in sufficient detail, or in such numbers, as to enable the profession to arrive at any definite conclusions on many vital and vexed questions affecting this operation. Amongst the most important points in dispute I venture to mention that considerable divergence of opinion exists as to whether removal of the tongue for cancer materially prolongs life, or alleviates suffering; which of the numerous methods advocated for removal of the tongue fulfils in the widest sense the objects of the operation; which operation is attended by the least risk to life, and prevents to the greatest degree the dangers from hæmorrhage, immediate and remote, shock, and septic dangers; and which operation is the least frequently followed by a return of the disease, or is attended by the longest interval without any recurrence; the advantage, or otherwise, of partial over complete removal, and the subsequent influence of each on the patient's powers of articulation.

There are other considerations, such as the causes influencing the rapidity of growth; the conditions regulating immediate or retarded implication of contiguous glands; and the connexion between the assigned effects of irritation and initial growth; each consideration requiring the light of accumulated evidence. It is not, moreover, unreasonable to suppose that, with a methodical record of cases, aids may be found that will considerably lessen the difficulties which now obscure differential diagnosis.

There are also many other points in connexion with cancer of the tongue which are associated with doubt in the minds of surgeons, and which can only be settled by a wider field of investigation, based upon more rigid and precise lines of inquiry than those that have hitherto been adopted on this important subject. A large number of cases, carefully recorded on some uniform system, would enable us to decide many of these questions, and it is in the hope that I may obtain the co-operation of those who have it in their power to advance surgery in this particular department that I am prepared to supply to any member of the profession special

forms, which, if accurately and generally filled up, must, in the aggregate, eventually prove of the greatest value.

The vital significance and surgical importance of the tongue as the seat of cancer is best appreciated by a reference to the returns of the Registrar-General, which show with what alarming strides cancer is increasing in England. In 1851 there were 5218 deaths from cancer, whereas in 1879, the year of the last report, the deaths amounted to no fewer than 12,799. To make this contrast more conspicuous I have compared the population of the two years with the number of deaths in each, when I find that the ratio of deaths in 1879 was 509 per million, whereas the deaths per million in 1851 were only 290; and on the assumption that cancer will continue to increase at the same rate during the next eighteen years, the deaths per million in 1897 will be 893, or more than three times as many deaths per million as occurred in 1851. How far, as the Registrar-General observes, "this apparent increase is simply due to improved diagnosis, and how far to a real augmentation, is doubtful;" but when we consider that an improved diagnosis is more likely to tell in the opposite direction we have every reason to fear that the returns of deaths from cancer are rather below than in excess of the actual number.

We have only, I regret to say, very imperfect data for calculating the number of deaths from cancer of the tongue, as there is no attempt made in the returns of the Registrar-General to specify the locality of the disease; but suppose, as I believe, from an estimate I have made, that 6 per cent. of the number included in the generic term cancer are cases of epithelioma of the tongue, a percentage which I think will not be found to be an exaggerated proportion, we may assume that 640 people died from cancer of the tongue in this country during the year 1879. The grave character of these statistics cannot fail I think to arrest the attention of thoughtful men, and stimulate the minds of scientific surgeons to increase the means at their disposal of lessening the mortality of this disease, as we have no reason to suppose at the present day that the internal administration of medicines, or that the topical application of drugs, has any material influence in arresting its progress.

ON A CASE OF HYDATID TUMOUR OF THE LIVER IN A YOUNG CHILD.

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HYDATID disease of the liver is an affection which attacks young children so infrequently that the following case seems worthy of record.

S. W—, a perfectly healthy-looking boy aged four years and a half, came under treatment at the Manchester Southern Hospital on the 22nd of September, 1880. Two days before, while playing with other children, a bigger boy took hold of him round the waist and lifted him from the ground. He ran home crying, and complained of pain about the stomach, and on examining him his mother found a swelling in the abdomen.

When he was admitted to the hospital a bulging prominence was found in the epigastrium, rather to the right of the median line. On palpation a globular tumour could be felt about the size of a small orange; it was smooth, tense, somewhat elastic, but not fluctuating. There was no hydatid fremitus, nor was there any pain or tenderness on pressure. It could be seen and felt to move freely with the respiratory movements. On percussion the dulness over the tumour was found to be continuous with that of the liver. There was no general enlargement of the liver; in the right mammary line it measured two inches, but slightly to the right of the median line (i.e., in the line of the tumour) three inches and a quarter. The lower margin of the projection was one inch from the umbilicus. There had been no jaundice or other constitutional symptoms. Owing to unwillingness on the part of the boy's parents nothing was done for two months, during which the swelling increased in size, and approached the surface. On Nov. 15th, it was explored by means of the aspirator and a fine needle, and thirteen drachms of fluid were evacuated. The fluid was perfectly clear; it contained no albumen, but abundance

of chlorides, so that, although no echinococci or hooklets could be found under the microscope, there could be no doubt of the hydatid nature of the tumour. There was no urticaria after the tapping, a symptom which is of tolerably frequent occurrence. In the case of a woman under my care, who was aspirated for the same disease three days before, this was a most distressing symptom, continuing more or less for a week. This sequela has been supposed to be due to an escape of a small quantity of hydatid fluid into the abdominal cavity. If this were the true explanation there certainly ought to have been urticaria in this boy's case. Wishing to ensure perfect quiet, I had allowed chloroform to be given, hoping that the small quantity necessary would not be followed by sickness. However, as soon as the needle was withdrawn, violent and repeated retching occurred, so that a drop or two of the fluid could hardly fail to have escaped into the peritoneum. I may add that in neither of these cases was any blood drawn through the aspirator, as sometimes occurs, on account of the possibility of which event Dr. Murchison advised that the aspirator should not be employed. Dr. Bradbury, however, uses it in every case, and a single aspiration has frequently been sufficient to produce cure. According to Dr. Broadbent, simple tapping, without the injection of any irritant fluid, is almost always effectual when the secondary cysts are few in number.

In this case the tumour slowly diminished in size, and two months after the aspiration not the slightest fullness could be felt over the region formerly occupied by the cyst.

There is, I believe, a general concurrence in the opinion that hydatid tumour of the liver, while common in adults, is decidedly rare in young children. Thus Murchison gives a table of 103 cases, in 95 of which the age is given, and of these 95, I find only 10 occurring below the age of ten years. Of these 10, 4 occurred in England, 2 to Dr. Murchison himself, of six and eight years respectively, and one to Dr. Anstie, of six years. The other was a case seven years old, but it was doubtful whether the cyst was really situated in the liver. Of the remaining 6 of Murchison's table, 5 occurred in Australia, in the practice of Dr. McGillivray, and one in France. One only of these was younger than my patient—namely, one of the Australian cases, which was a little boy of three years. Of course the disease is very prevalent in Australia, owing to the scarcity and foulness of the water, human beings and dogs frequently drinking at the same source. Of Murchison's 95 cases, 61 occurred in England, all of them older than the case I have narrated. Frerichs, in his work on Diseases of the Liver, says that the youngest case he has met with was seven years of age, but that the great majority have been between thirty and fifty. Davaine, in his treatise on Entozoa, says that hydatids are usually found in middle life; they are most common from twenty to forty years of age, and are almost unknown in young children. He mentions two cases, one of which occurred to Cruveilhier, an infant, who died when twelve days old, in whom the cyst had burst into the intestine, and the other in a girl of four years. Dieulafoy, in his work on Aspiration, gives seven cases, the youngest of which was a child of eleven. The text-books on children's diseases pronounce this affection to be very rarely met with in children. A case in a child of six years, under the care of Dr. Wilson at the Cheltenham Hospital, was reported in April, 1880, and another has been recently recorded in a child of seven by Mr. Lawson Tait.

Manchester.

CASE OF BAYONET WOUND OF THE LUNG.

By SURGEON-MAJOR J. M. O'FARRELL,

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ON the evening of Sept. 4th, 1881, during the unfortunate collision between the people and police, which ended in the latter firing, John O'K—, a railway porter, and a muscular man in perfect health, was standing on the platform when, he says, a policeman, who was on his right, made a thrust at him with a sword-bayonet, which was fixed to the carbine. He instinctively raised his arm to avert the thrust, and felt the bayonet pierce it. Immediately his mouth was filled with blood, and he became very faint. He managed, however, with the aid of a friend to reach his home (a distance of about 120 yards), but he had to stop several times on the

way, being in danger of choking by the blood which was now welling up in an almost continuous stream. Within twenty minutes of the receipt of the injury he was seen by Dr. Delandres. He then seemed very faint, and complained of great oppression about the chest, his pulse could scarcely be felt, and now and again he gave a short cough, when a stream of blood issued from his mouth.

Dr. Delandres examined the external wound (which will hereafter be described), but could introduce his finger only a very short distance. He also made a most careful examination of the chest, but could not find that any of the ribs were broken; he heard, however, gurgling sounds indicating the presence of fluid in the bronchial tubes over the back of the right lung, and even then the emphysema, which afterwards became general, had begun in the vicinity of the external wound. He ordered all the windows to be opened, placed the injured man on his right side, with the wound in the most depending position, and prescribed a mixture of ergot, opium, and sulphuric acid. Dr. Delandres saw the man again late the same night, when the hæmorrhage had ceased.

At noon on the following day he was admitted into Barrington's Hospital, and placed under the care of Dr. Myles. I then saw him, and he was in a most critical state—face sunken and livid, tongue brown and dry, temperature 101°, pulse 120 (small), respiration 36. He coughed frequently, and the expectoration consisted of blood, with a very little viscid mucus. There was emphysema, more marked than I had ever before seen it, over the whole of the anterior of the chest and the lower triangles of the neck. There was also dulness on percussion over the base of the right lung, where coarse crepitation and moist râles were audible. The external wound, about half an inch wide, was immediately below the insertion of the pectoralis major and inside the biceps. Supposing the arm to be in the position O'K— describes, the bayonet must have traversed a distance of from four inches to four inches and a half to have reached the lung, passing in its transit through the floor of the axilla, in most perilous proximity to the vessels and nerves, and probably entering the chest between the third and fourth ribs. There was a large rent, fully an inch and a half wide, on the external part of the sleeve of the coat which he wore. This rent was about four inches and three-quarters from the acromion, so that the direction of the thrust must have been upwards and inwards. An attempt was made to explore the wound with a probe, but was not persevered in. The injured side was strapped. He was ordered a pill containing one grain of digitalis and a quarter of a grain of opium every fourth hour, milk, and beef-tea.

Sept. 6th: Slept fairly well, expectoration unchanged. Temperature 99.4°, pulse 120, respiration 30, tongue more moist. No change in emphysema or condition of base of lung. To continue treatment.—7th: Slept well. Expectoration contains much less blood. Temperature 101°, pulse 100, respiration 20. No change in amount of emphysema. Dulness over base of lung less marked. Ordered a dose of house mixture and to continue opium and digitalis.—8th: Slept well. Temperature 100°, pulse 90, respiration 20. Emphysema somewhat less, dulness on percussion less, and moist râles less distinct. To continue treatment.—9th: Passed a very good night. Temperature 101.8°, pulse 84, respiration 20. Emphysema less, tongue cleaning. Amphoric resonance over the middle and upper part of left lung posteriorly. Expectoration contains very little blood. To continue treatment.—10th: Temperature 99.8°, pulse 90 (very feeble), respiration 20. Amphoric resonance less distinct. Ordered four ounces of whisky daily.—11th: Temperature 100°, pulse 84, respiration 18. No blood in sputa. Amphoric resonance quite gone. Emphysema much less.—13th: Temperature, pulse, and respiration normal. Emphysema much less. From this date the progress towards recovery has been uninterrupted, and O'K—, although of course still weak, is now, Sept. 23rd, able to take a walk every day.

There are some interesting features in this case. The external wound was very small compared with the size of the weapon with which it was inflicted, and even due allowance being made for the contractility and elasticity of the skin; it was difficult to realise that a bayonet one inch wide could have passed fully four inches through so small an opening, but repeated examinations at the time the injury was inflicted, and afterwards during the progress of the case, satisfied us that no rib was broken, so that the wound of the lung must have been caused by the bayonet.

Again, how did the vessels and nerves escape? The